

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

Claims 1-52 (canceled)

53. (currently amended) A prepreg material formed by a step of impregnating a fibrous reinforcement at a first temperature with a molten thermoplastic resin composition, wherein the temperature of the molten resin composition is at least about 75°C (42°C) lower than the first temperature, and further wherein said prepreg material has substantially no voids according to claim 52, comprising from about 25 to about 75% by weight resin.

Claims 54-57 (canceled)

58. (currently amended) A prepreg material formed by a step of impregnating a fibrous reinforcement at a first temperature with a molten thermoplastic resin composition, wherein the temperature of the molten resin composition is at least about 75°C (42°C) lower than the first temperature, and further wherein said prepreg material has substantially no voids according to claim 52, wherein the fibrous reinforcement is coated with a sizing or finishing material.

Claims 59-61 (canceled)

62. (previously presented) An apparatus for impregnating a continuous fiber material, comprising a heater for heating a fibrous reinforcing material, a means for applying a tension to the fibrous reinforcing material, and a container containing a molten resin composition, said container having an inlet and an outlet for the heated fibrous reinforcing material in which the heated reinforcing material is contacted with the molten resin composition; wherein the container includes therein a shearing mechanism for the fibrous reinforcing material, and further wherein the heater is located so that it provides the heated fibrous reinforcing material to the inlet with the fibrous reinforcing material at a temperature sufficient to cause the molten resin composition to fully or substantially fully wet out the fibrous reinforcing material.

63. (original) An apparatus according to claim 62, wherein the shearing mechanism comprises at least one shear pin.

64. (previously presented) An apparatus according to claim 62, wherein the shearing mechanism comprises from one to about four shear pins.

65. (original) An apparatus according to claim 62, wherein the shearing mechanism comprises a pair of shear pins.

66. (previously presented) An apparatus according to claim 63, wherein at least one shear pin has an opening to provide the molten resin composition.

67. (previously presented) An apparatus according to claim 63, wherein at least one shear pin is connected to a heat source for heating the shear pin.

68. (previously presented) An apparatus according to claim 62, wherein said container further comprises a unit for applying pressure to the resin composition.

69. (previously presented) An apparatus according to claim 62, wherein said outlet is a sizing die.

70. (previously presented) An apparatus according to claim 62, further including molding equipment for forming impregnated fibrous reinforcing material exiting the container into an article of a desired shape.

71. (previously presented) An apparatus according to claim 62, wherein the heater is selected from the group consisting of radiant heaters, inductive heaters, infrared tunnels, ovens, and combinations thereof.

72. (previously presented) An apparatus for preparing a reinforced matrix resin composition, comprising a heater for heating a fibrous reinforcing material, a molten resin composition that is located so as to first contact the heated fibrous reinforcing material while the heated fibrous reinforcing material is at a first temperature, and a compressing unit for pressing the heated fibrous reinforcing material together with the resin composition; wherein the first temperature is sufficiently above the temperature of the resin composition to cause the resin composition to fully or substantially fully wet out the fibrous reinforcing material.

73. (original) An apparatus according to claim 72, wherein the compressing unit is at least one pair of compaction rollers.

74. (previously presented) An apparatus according to claim 72, wherein said first temperature is from about 75°F to about 500°F above the temperature of the resin composition.

75. (original) An apparatus according to claim 72, further comprising a sizing die located after said compressing unit.

76. (original) An apparatus according to claim 72, further including molding equipment for forming the reinforced matrix resin composition into an article of a desired shape.

77. (original) An apparatus according to claim 72, wherein the heater is selected from the group consisting of radiant heaters, inductive heaters, infrared tunnels, ovens, and combinations thereof.

78. (previously presented) An apparatus for preparing a prepreg, comprising a heater for heating a fibrous reinforcing material to a first temperature and a container of a liquid, crystallizable resin composition having an inlet and an outlet for the heated fibrous reinforcing material; wherein the heater is at a temperature and location so that the first temperature, as measured at the point where the heated fibrous reinforcing material is brought into contact with the resin composition, is sufficiently high to cause crystallization at the interface of said reinforcing material and said resin composition of the prepreg.

79. (previously presented) An apparatus according to claim 78, wherein said resin composition has a viscosity greater than 200 pascal·s.

80. (original) An apparatus according to claim 78 wherein said crystallization is enhanced by the presence of a maleic anhydride group.